APPENDIX C

Pseudo Code

The pseudo code below illustrates how ModelService calls the other components to implement its functionalities.

```
public class ModelService : IModelService
{
        // various work modules
        private IMapLoader mapLoader = null;
        private IMapWalker mapWalker = null;
        private IModelGenerator modelGenerator = null;
        private IModelMaterializer modelMaterializer = null;
        private ICodeGenerator codeGenerator = null;

        // inputs
        private ArrayList mapFiles = new ArrayList();

        // configuration
        private Config config = null;
        private Hint hint = null;

        // intermediate results
        private EntityMapCollection maps = null;
        private DataSet schema = null;
        private UDMModel udmModel = null;

        // instantiate a session of ModelService using the default work modules
        public ModelService()
        {
                mapLoader = new MapLoader();
                mapWalker = new MapWalker();
                modelGenerator = new ModelGenerator();
                modelMaterializer = new ModelMaterializer();
                codeGenerator = new CodeGenerator();
        }

        // set the configuration object for this ModelService session
        public void SetConfig(Config config)
        {
                this.config = config;
                GetHintFromConfig();
        }

        // obtain hint information from the hint file declared in config if any
        public void GetHintFromConfig()
        {
                this.hint = Hint.Deserialize(config.HintFileName);
        }

        // add a map file for later processing
        public void AddMapFile(string fileName)
        {
                mapFiles.Add(fileName);
        }

        // this is where the real processing goes
        public void Process()
        {
                // 1. LOAD THE MAPS
                //
                LoadMaps();

                // 2. WALK THE MAPS
```

```
            //
            WalkMaps();

            // 3. GENERATE THE UDM MODEL
            //
            GenerateModel();

            // 4. MATERIALIZE THE UDM MODEL
            //
            MaterializeModel();

            // 5. GENERATE THE BIENTITY CODE FOR ACCESS TO THE UDM MODEL USING THE FRAMEWORK
            //
            GenerateCode();

            // 6. PROCESS THE UDM MODEL
            //
            ProcessModel();
    }


// invoke MapLoader to load maps
public void LoadMaps()
{
            mapLoader.SetMapTransformFile(this.config.MapTransformFileName);

            // add each map file to the map loader and ask it to load the maps
            foreach(string mapFile in this.mapFiles)
            {
                    mapLoader.AddMapFile(mapFile);
            }
            mapLoader.LoadMaps();

            // retrieve the collection of loaded maps from map loader
            this.maps = mapLoader.EntityMaps;
}

// invoke MapWalker to walk maps
public void WalkMaps()
{
            // configure the mapWalker
            mapWalker.SetDBSchemaName(this.config.DbSchemaName);
            mapWalker.SetMeasureHints(this.hint.MeasureHints);

            // pass the maps obtained from MapLoader to be processed
            mapWalker.SetEntityMapCollection(this.maps);

            // walk the maps using the MapWalker and retrieve the result
            mapWalker.WalkEntityMaps();
            this.schema = mapWalker.Schema;
}

// invoke ModelGenerator to generate UDM Model
public void GenerateModel()
{
            // configure the modelGenerator
            modelGenerator.SetDataSource(this.config.DbServerName, this.config.DbDatabaseName);
            modelGenerator.SetHint(this.hint);

            // pass the schema to ModelGenerator to be processed
            modelGenerator.SetSchema(this.schema);

            // generate the UDM model and retrieve the result
            modelGenerator.Generate();
            this.udmModel = modelGenerator.UdmModel;
}
```

```
// invoke ModelMaterializer to materialize UDM model
public void MaterializeModel()
{
        modelMaterializer.SetUDMServerName(this.config.UdmServerName);
        modelMaterializer.SetLogFile(this.config.UdmLogFileName);
        modelMaterializer.SetDropAllDatabases(this.config.DropUdmDatabases);

        // pass the udmmodel to be materialized to the ModelMaterializer
        modelMaterializer.SetUdmModel(this.udmModel);

        // materialize the result to the UDM server
        modelMaterializer.Materialize();
}

// invoke CodeGenerator to generate BIEntity code
public void GenerateCode()
{
        // set inputs to code generator
        codeGenerator.SetUdmModel(this.udmModel);
        codeGenerator.SetBICodeGenerator(null);

        // generate the code for BIEntity classes
        codeGenerator.Generate();
}

// invoke ModelProcessor to process UDM model generated
public void ProcessModel()
{
        modelMaterializer.Process();
}
}
```